

CLASSIFICATION SECRET

CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

REPORT

CD NO.

COUNTRY East Germany

DATE DISTR. 5 February 1959

SUBJECT East German Trunk Cable System

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SUPPLEMENT TO
REPORT NO.

REPORT NO.

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1. In late 1954, the GDR Ministry of the Interior ordered the completion of the "Ring around Berlin" section of the trunk-cable system. Subsequently the Ministry of Post and Telecommunications (MPF) issued orders to its district headquarters that they release 180 telecommunication engineers by 1 January 1955 and make available 630 km of long-distance cables, 230 telephone sets in addition to 55 teleprinters for this project. Construction work was started in 1955.

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2. Status of the "Ring around Berlin" Trunk-Cable System

- a. The "Ring around Berlin" trunk-cable system consists of two ring systems:

- (1) Trunk Cable No 201. The dismantled Bicszenthal - Muencheberg section of this line has been replaced by a district cable.

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- (2) Trunk Cables Nos 161 and 160. These cables are concentric lines. Between Biesenthal and Oranienburg the ring was closed by Trunk Cable No 156, while the gaps between Oranienburg and Nauen were scheduled to be bridged by a decimeter-wave connection and between Nauen and Potsdam (Wildpark) by a styroflex-type cable.

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The new trunk cables were laid at a depth of 100 to 120 centimeters exclusively along field-paths and forest-roads. Cables crossing waterways were buried in the river bed and secondary connections are envisaged for important cables on bridges and at river-crossing points.

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- b. The following repeater stations were newly built or reconstructed for the "Ring around Berlin" cable system:

- (1) Repeater station Strausberg

The building of the station was scheduled to be completed by July 1955. A military unit is stationed at the building. Through the repeater station

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Strausberg the GDR Ministry of National Defense is connected to the trunk cable system of the GDR.

(2) Repeater Station Biesenthal

This station was newly constructed. It will be equipped with a perimeter cable and a connection for an auxiliary mobile repeater station. This measure is scheduled to be taken for all repeater stations located on the more important East-West trunk cables.

(3) Repeater Station Zossen

This installation was built between 1953 and 1955.

(4) Repeater Station Zeuthen

This station was scheduled to be completed by late September 1955. The station is provided with a concrete bunker measuring 4x3x2.5 meters and 3.5 meters below the surface. On the bunker a wooden building with a saddle roof has been erected.

c. Of the newly constructed cable chambers the following are of major importance:

- (1) Cable chamber at Waldsiedersdorf which is scheduled to be provided with a connection to a high-level command headquarters at "Rotes Luch".
- (2) Cable chamber at Steinbeck, which is scheduled to be provided with a connection to the emergency station of the GDR Ministry of National Defense.

3. Purpose and Employment of the "Ring around Berlin" Trunk-Cable System

- a. The "Ring around Berlin" system is designed to handle all telecommunication traffic in the GDR on the basis of a complete elimination of the Western Sectors of Berlin also in the event of a breakdown of East-Berlin trunk exchanges. Trunk cable connections in the GDR join the "Ring around Berlin" system through which they are connected to the agencies of the Soviet Occupation Power, the GDR Ministry of National Defense and the various agencies of NVA.

Connected to the "Ring around Berlin" system are the following trunk exchanges:

Wildpark	serving connections to the West
Cottbus and Dresden	serving connections to the South
Guelldendorf (Frankfurt/ Oder)	serving connections to the East
Biesenthal	serving connections to the North.

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- b. In addition to the symmetrical lines, a coaxial line is available at trunk cable systems Nos 160 and 161. This coaxial line had been designed for television purposes in the GDR and so it could also be used for air defense purposes, i.e. the transmission of images on radar screens to Strausberg and via trunk cable system No 162 to the East via Frankfurt/Oder.
- c. The "Ring around Berlin" trunk-cable system is to protect the GDR trunk-cable network against tapping from the Western sectors of Berlin. The taking of such security measures was caused by the discovery of a wire tapping point at Altglienicke which had been constructed to tap cables Nos 150 and 151. According to telecommunication experts, the discovery of this tapping point was only possible by counter-espionage activity. At that time, trunk cables Nos 150 and 151 were withdrawn from all controls by Fernkabelmesstelle Ost (GDR agency in charge of controls for all trunk cables). Maintenance work on these trunk cables was done by the Soviets themselves and they did their work in such a poor way that all traffic on the lines involved was temporarily disturbed. The tapping point was not discovered although a faulty soldered joint was opened and checked at a distance of only 100 meters from it. After the cables involved were returned to the Office for Trunk Cables, general repair work on them took about 1 year. For the insulation of wires the Soviets had used newspapers instead of soldering sleeves thus completely distorting the balancing of cables. After the discovery of the tapping points Soviet telephone traffic was switched over to trunk cable No 201. Furthermore, all trunk cables were checked regarding their distance from the Western sectors of Berlin. In connection with this work, trunk cables Nos 150 and 151 were rerouted because it was found that they were too close to the Western enclave of Steinstuecken.

4. Employment of Equipment

In the course of Trunk Cable No 161 a test line for the testing of the new type V-60 carrier frequency sets is scheduled to be established between the Biesenthal and Mueggelberge stations. The development of the V-60 sets is said to be nearing completion at the RFT Bautzen telecommunication engineering plant. An experimental series of these sets is to be available shortly before the end of 1958. Until completion of the tests for the V-60 sets the old-type Z8, V12 and MG15 sets will remain in service on the carrier frequency lines. Regarding the set-up of the intermediate repeater stations it is envisaged that each manned repeater station will control one automatic repeater station via outgoing cables. Experiments made so far for the development of tele-signalling purposes and remote feeding via carrier frequency wires required for the new system have not been successful.

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The procurement of equipment met with great difficulties, in particular on carrier frequency lines. Thus, for instance, it has been found out that the carrier frequency cable distribution head switch-boards installed on Trunk Cables Nos 159 and 160 between Berlin-Mueggelberge-Wildpark may be used only for up to 160 kHz. They must therefore be replaced when the modern carrier frequency system will be introduced. A total of 86 cable distribution head switchboards will be required for all two-ring sections of the trunk cable system in the GDR. However, the Oberschoeneweide Cable Works have so far promised only the delivery of 20 such units for 1958, because the development of the anti-distortion devices required is meeting with difficulties. Even the procurement of relatively simple component parts such as sleeves for the consoles was possible only after the overcoming of great difficulties and with the help of the Ministry. The State Planning Commission has already accused the Ministry of Post and Telecommunications of squandering millions of marks every year by the erection of completely useless buildings. The sharp reduction of the investment funds allocated to the Ministry of Post and Telecommunication for the period 1958-60 must be attributed to this situation. Whereas 16 million DME were available for cables required for telephone lines in 1957, this sum was cut to 12 million DME in 1958. All work in the field of trunk cable connections must therefore be limited to the improvement of the carrier frequency-telecommunication basic network and the NVA net. No means will be available for the BzK and the NGK networks in the coming year. The Oberschoeneweide cableworks (KWO) has suspended the manufacture of coaxial cables, because this proved unprofitable owing to the fact that the manufacture of the coaxial cores had to be controlled by hand. Automatic machines are expected to be imported from Western countries. These imports will not be forthcoming before 1962, however. Until that date, KWO intends to manufacture only symmetrical cables.

Comment. A ring connection around the city of Berlin was previously established by Trunk Cable No 201. This ring around Berlin trunk cable system has now been reconstructed but orientated toward the new repeater station at Strausberg. Through the new Trunk Cable systems Nos 160 and 161 and the utilization of some new Bezirk cables the ring connection around Berlin has been improved to a two-ring system. After the laying of Trunk Cables Nos 160 and 161 and the completion of the Strausberg repeater station, major portions of the ring around Berlin trunk cable network were usable about 1956. The delays experienced in the starting of the production of new carrier frequency sets tends to indicate that an increase

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in the number of telephone channels and thus the full utilization of the partly modern trunk cables may be expected only in the coming years. Since these improvements will mainly benefit commercial telephone traffic they will probably not be realized at a great speed. The usability of this network in time of war was increased by the installation of protected repeater stations, the laying of the important cables away from main roads and Autobahnen, the construction of secondary lines on bridges and at river crossing points and the preparation of connections for emergency command posts of higher headquarters. The construction of the telecommunication ring lines [REDACTED]

[REDACTED] met the plans of the GDR Government which wanted to remove the GDR trunk cable system from the city area of Berlin where it previously was centered.

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Comment: The enclosed annex enumerates and furnishes details on East German cable lines.

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Annex 2

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Detailed Data on the Cable Systems

Long-Distance Cables Nos:

- 60, two-way operation, 162-pair cables; with all its pairs the cable is looped in to Strausberg.
- 150, type 63 a, built in 1946, 63-pair cables.
- 151, type 97 a and 114 a, built in 1946, 114-pair cables.
- 152, type 97 a, built in 1946, 97-pair cables.
- 153, 114-pair cables.
- 154, 92-pair cables.

These sections of cable lines were built from material obtained by the dismantling of other cable lines in the GDR. Carrier frequency equipment was also utilized. Further details are not available and the course of the cable is unknown.

- 155, paper-insulated, 16-pair cable 60 kHz; type 2 8 equipment was utilized; this cable has been extended from Oranienburg to Nauen through the utilization of directional wireless. The directional wireless connection was completed prior to 1956. A 40-km stretch without relay stations.
- 156, paper-insulated, 8-pair cable, two-way operation; 60 kHz; the cable extended from Stralsund to the Berlin no-delay exchange. It was laid in 1951/52 and is provided with a junction to the Naval Headquarters on Schnellerstrasse. In 1954, the cable was rerouted from Oranienburg to Biesenthal. It is planned to improve the cable to 252 kHz and to use type V-60 equipment. Orders for the projecting of this work were given.
- 157, 32-pair low frequency cable.
- 158, this cable was laid for the Soviet Occupation Power in 1949/50.
- 159, paper-insulated, 32-pair cable, two-way operation, 160 kHz, utilization of type V-12 equipment. On 1 August 1955, the line was 60 % completed. During the third Five-Year Plan it was envisaged to improve the cable to a capacity of 252 kHz, to establish an intermediate repeater station near Uhlenhorst and to instal type V-60 equipment.
- 160, cable of type 17a (see Annex 2), two-way operation; the cable was completed in 1956. The Kueggelberge - Grossbeeren section was completed by 1 August 1955. The system is still without compensation. It is planned to improve this cable to a capacity of 252 kHz and to utilize type V-60 equipment. Intermediate repeater stations are said to be under construction near Rehbruecke and Grossbeeren. The Grossbeeren repeater station is then to discontinue operations.

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Annex 2

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- 161, cable of type 17 a (see Annex 3), two-way operation; the first cable system to be compensated to 552 kHz. The cable was laid in 1955/56 (scheduled completion date: 30 September 1955). The intermediate repeaters required for type V-60 sets were completed by mid-1957. The pertinent equipments for the Biesenthal and Mueggelberge stations are to be supplied in the 4th quarter of 1958. No 161 cable is scheduled to be used as an experimental line for the use of type V-60 equipment working on a remote-feeding and remote-signaling basis. Temporary switching installations are camouflaged as civilian houses.
- 162, cable of type 17 b (cross section of the central conductor of type 17 a cables: 3, 3/12, 7; and 3, 4/12, 7 for type 17 b cables). Two-way operation. The cable was laid in 1956 and 1957. Data on 1958 plans are not available. The cable is scheduled to be compensated to 552 kHz.
- 164, styroflex-insulated, 14-pair cable, two-way operation, 552 kHz. The system was under construction in early 1958; it is planned to erect an intermediate repeater station near Gruenau.
- 201, 92-pair cable. The Biesenthal-Muencheberg section was dismantled and the gap was bridged by Bezirk cables (see items Nos 4 and 6).

Bezirk Cables Nos:

- 156, type 8 k, two-way operation, 8-pair cable, 60 kHz.
- 269, 74-pair cable, constructed for the Soviet Occupation Forces in 1953.
- 270, 102-pair cable, built from sections of old cables of various types.

The classification numbers of the following Bezirk cables are unknown:

1. Styroflex-insulated, 14-pair cable, one-way operation, 552 kHz. The laying of the cable is planned for 1959, and orders for the projecting of the cable have been given.
2. 55-pair cable, one-way operation, provided with LF, carrier frequency, RF and telephone circuits. The laying of this cable-system is planned for 1959, and order for the projecting of the cable system have been given.
3. 70-pair cable, mixed system.
4. The cables of this system were laid in 1957 and assembly work was scheduled to be continued in 1958.
5. 36-pair cable, mixed system, under construction since about early 1958.
6. Same as item 5. The line is to run via the new Waldsieversdorf mine, from there a branch extends to a higher command headquarters, at "Rotes Luch".
7. 32-pair cable, paper-insulated, for carrier frequency, low frequency and radio purposes. The cable was laid in 1957 and assembly work was completed in 1958.
8. This cable system is still in the planning stage; it is scheduled to use 80-pair cables, one-way mixed system. The cable is scheduled to be laid in 1958/59.
9. Planned; 40-pair cable.
10. Planned; 40-pair cable.

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Annex 3

~~8~~LegendCable Type 17 a - Scale: 2:1Type 17 a 3 Underground Cable

jute and compound
2 layers 40 x 0.5 mm iron strip
paper and compound
lead sheath 1.5 mm
paper
2 copper strips 20 x 0.06 mm
1 copper foil 65 x 0.06 mm

Type 17 a 1 Tube Cable

lead sheath 1.8 mm
styroflex foil
1.3 mm copper squad
concentric copper feed-back
trolitut dish
inner core 3.33 mm diameter

Type 17 a 4 Underwater Cable

lead sheath 2 mm	jute and compound
jute and compound	2 layers 40 x 0.5 mm iron strip
5-mm circular wire	

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COUNTRY East Germany

REPORT

SUBJECT Trunk-Cable System in the GDR

DATE OF REPORT 8 December 1958

PLACE ACQUIRED

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LAST REPORT ON SUBJECT
(if applicable)

ANNEXES

3 - blueprints with legend
on ditto, 1 list on ditto

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The new trunk cables were laid at a depth of 100 to 120 centimeters exclusively along field-paths and forest-roads. Cables crossing waterways were buried in the river bed and secondary connections are envisaged for important cables on bridges and at river-crossing points.

- b. The following repeater stations were newly built or reconstructed for the "Ring around Berlin" cable system:

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The building of the station was scheduled to be completed by July 1955. A military unit is stationed at the building. Through the repeater station

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Strausberg the GDR Ministry of National Defense is connected to the trunk cable system of the GDR.

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This station was newly constructed. It will be equipped with a perimeter cable and a connection for an auxiliary mobile repeater station. This measure is scheduled to be taken for all repeater stations located on the more important East-West trunk cables.

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This installation was built between 1953 and 1955.

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[REDACTED] met the plans of the GDR Government which wanted to remove the GDR trunk cable system from the city area of Berlin where it previously was centered. For blueprints and list on ditto, see Annexes.

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Annex 2

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Detailed Data on the Cable Systems

Long-Distance Cables Nos:

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These sections of cable lines were built from material obtained by the dismantling of other cable lines in the GDR. Carrier frequency equipment was also utilized. Further details are not available and the course of the cable is unknown.

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160, cable of type 17a (see Annex 1), two-way operation; the cable was completed in 1956. The Kueggelberge - Grossbeeren section was completed by 1 August 1955. The system is still without compensation. It is planned to improve this cable to a capacity of 252 kHz and to utilize type V-60 equipment. Intermediate repeater stations are said to be under construction near Rehbruecke and Grossbeeren. The Grossbeeren repeater station is then to discontinue operations.

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Annex 2

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The classification numbers of the following Bezirk cables are unknown:

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- 2. 55-pair cable, one-way operation, provided with LF, carrier frequency, RF and telephone circuits. The laying of this cable-system is planned for 1959, and order for the projecting of the cable system have been given.
- 3. 70-pair cable, mixed system.
- 4. The cables of this system were laid in 1957 and assembly work was scheduled to be continued in 1958.
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- 6. Same as item 5. The line is to run via the new Waldsiefersdorf mine, from there a branch extends to a higher command headquarters, at "Rotes Luch".
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- 8. This cable system is still in the planning stage; it is scheduled to use 80-pair cables, one-way mixed system. The cable is scheduled to be laid in 1958/59.
- 9. Planned; 40-pair cable.
- 10. Planned; 40-pair cable.

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Annex 3

25X1

- 2 -

LegendCable Type 17 a - Scale: 2:1Type 17 a 3 Underground Cable

jute and compound
2 layers 40 x 0.5 mm iron strip
paper and compound
lead sheath 1.5 mm
paper
2 copper strips 20 x 0.06 mm
1 copper foil 65 x 0.06 mm

Type 17 a 1 Tube Cable

lead sheath 1.8 mm
styroflex foil
1.3 mm copper squad
concentric copper feed-back
trolitut dish
inner core 3.33 mm diameter

Type 17 a 4 Underwater Cable

lead sheath 2 mm	jute and compound
jute and compound	2 layers 40 x 0.5 mm iron strip
5-mm circular wire	

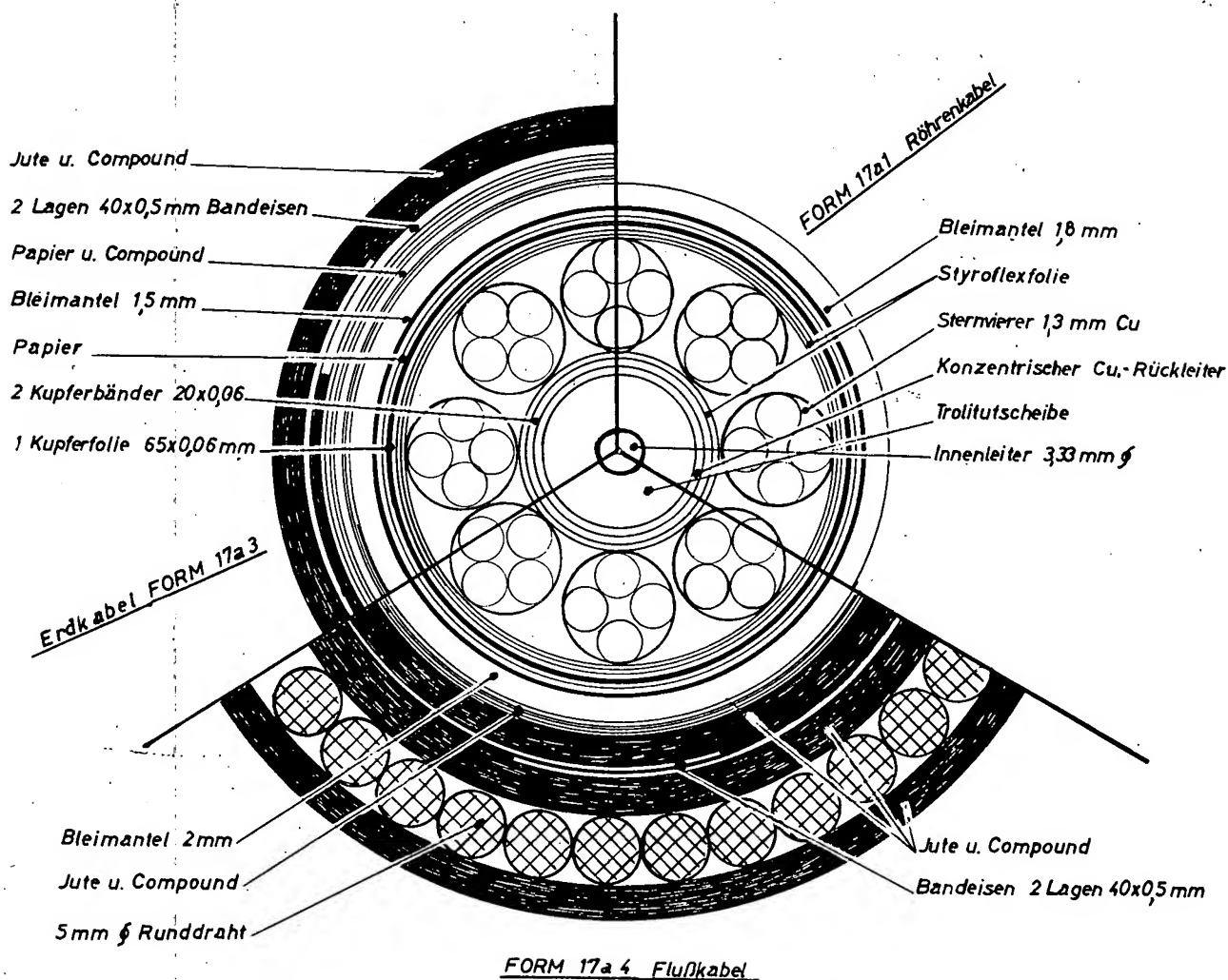
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SECRET

Fernkabel Form 17a

Maßstab: 2:1

25X1



	Form 17a1	Form 17a3	Form 17a4
<i>du</i> Außendurchmesser		50,0	68,0
ϕ unter Blei	34,2	34,2	34,3
ϕ über Blei	38,0	37,4	38,5
Gesamtgew. p. km	3 370	4 592	11 494
Fabr. Länge	200	240	160
Trl. Nr.	E 16	8x	9
Trl. Abmessung	1600x1000x1000	2000x1500x985	2 250x1400x985
Trl. Gew.	365	520	700

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25X1

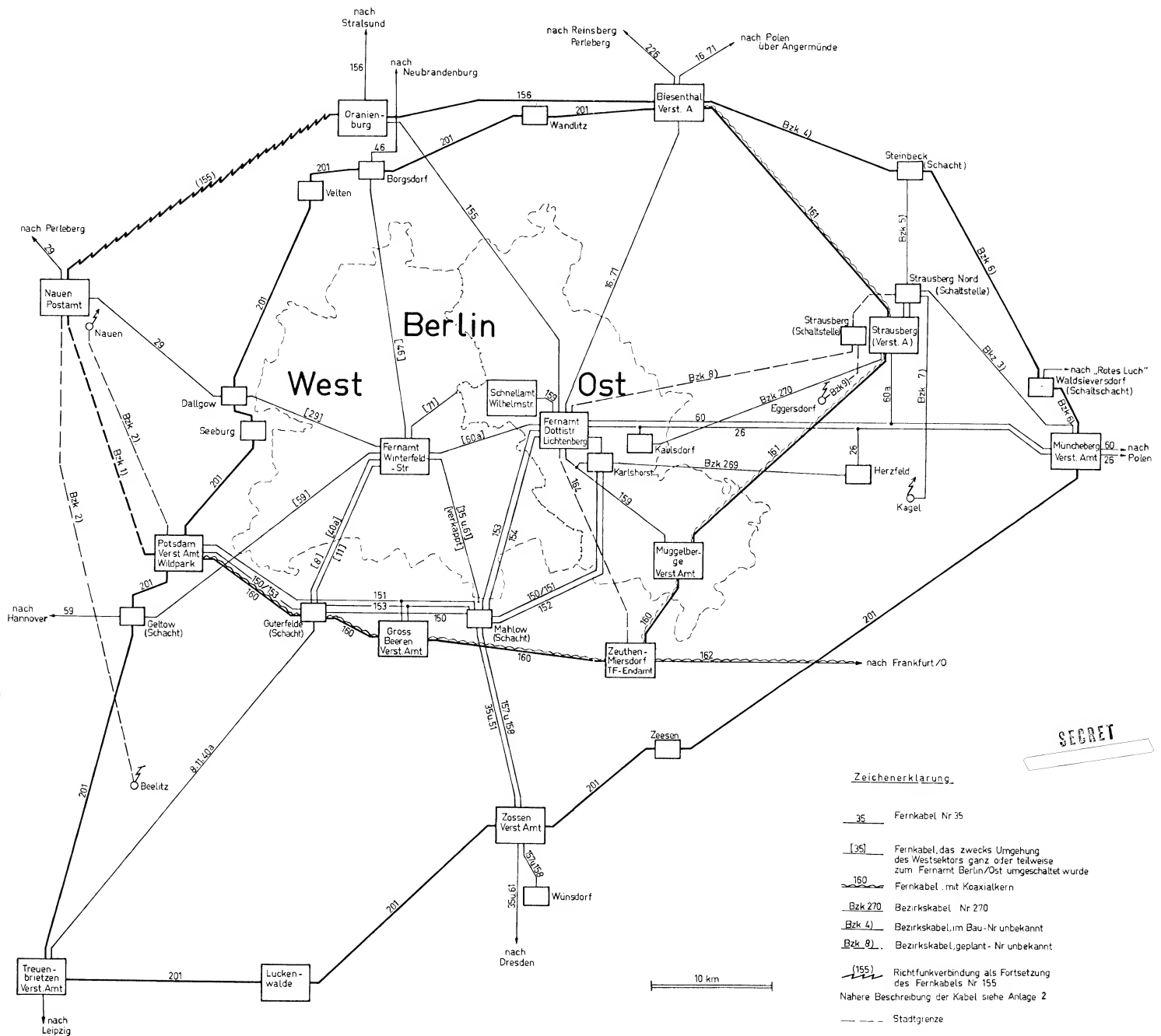
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Fernkabel-Grundleitungsnetz in der SBZ

Abschnitt „Ring um Berlin“

Schematische Darstellung nach dem Stand
vom Januar 1958

25X1



SECRET

25X1